



[7590-01-P]

## NUCLEAR REGULATORY COMMISSION

[NRC-2012-0100]

### **Burnup Credit in the Criticality Safety Analyses of Pressurized Water Reactor Spent Fuel in Transportation and Storage Casks**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Interim staff guidance; issuance.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC or the Commission) is issuing a Spent Fuel Storage and Transportation Interim Staff Guidance (SFST-ISG)-8, Revision 3, entitled, "Burnup Credit in the Criticality Safety Analyses of PWR [Pressurized Water Reactor] Spent Fuel in Transportation and Storage Casks." This SFST-ISG provides guidance for use by NRC staff when reviewing applications requesting burnup credit in the criticality safety analyses of pressurized water reactor spent nuclear fuel (SNF) in transportation packages and storage casks. SFST-ISG-8, Revision 3, includes two major changes in the staff recommendations: (1) optional credit for fission product and minor actinide neutron absorbing isotopes in the SNF composition, and (2) misload analyses and additional administrative procedures in lieu of a burnup measurement at the time of loading.

**ADDRESSES:** Please refer to Docket ID NRC-2012-0100 when contacting the NRC about the availability of information regarding this document. You may access information related to this document, which the NRC possesses and are publicly available, using any of the following methods:

- **Federal Rulemaking Web site:** Go to <http://www.regulations.gov> and search for Docket ID NRC-2012-0100. Address questions about NRC dockets to Carol Gallagher; telephone: 301-492-3668; e-mail: [Carol.Gallagher@nrc.gov](mailto:Carol.Gallagher@nrc.gov).
- **NRC's Interim Staff Guidance Web Site:** The SFST-ISG documents are also available online under the "*Spent Fuel Storage and Transportation*" heading at <http://www.nrc.gov/reading-rm/doc-collections/#int>.
- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may access publicly available documents online in the NRC Library at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "[ADAMS Public Documents](#)" and then select "[Begin Web-based ADAMS Search](#)." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to [pdr.resource@nrc.gov](mailto:pdr.resource@nrc.gov). The SFST-ISG-8, Revision 3, is available in ADAMS under Accession No. ML12261A433.
- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

**FOR FURTHER INFORMATION CONTACT:** Mr. Andrew Barto, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-492-3336; e-mail: [Andrew.Barto@nrc.gov](mailto:Andrew.Barto@nrc.gov).

## **SUPPLEMENTARY INFORMATION:**

### **I. Introduction**

The NRC issues SFST-ISGs to communicate insights and lessons learned and to address emergent issues not covered in SFST Standard Review Plans. In this way, the NRC

staff and stakeholders may use the guidance in an SFST-ISG document before it is incorporated into a formal SRP revision.

The NRC staff has developed SFST-ISG-8, Revision 3 to (a) incorporate the results of burnup credit criticality safety research performed since the last SFST-ISG-8 revision in 2002 into the limits for the licensing basis, (b) provide recommendations regarding advanced isotopic depletion and criticality code validation techniques, (c) provide recommendations regarding credit for fission product neutron absorbing nuclides in the criticality analysis for SNF systems, (d) add a recommendation for an optional misload analysis coupled with additional administrative SNF system loading procedures, in lieu of a direct burnup measurement, and (e) make miscellaneous and editorial changes.

## **II. Further Information**

The draft SFST-ISG-8, Revision 3, was published in the *Federal Register* on May 2, 2012 (77 FR 26050) for a 30-day public comment period. The public comment period closed on June 1, 2012. A table containing the comments received from external stakeholders and the staff responses to these comments is available in ADAMS under Accession No. ML12261A432.

Dated at Rockville, Maryland, this 26<sup>th</sup> day of September, 2012.

For the Nuclear Regulatory Commission.

**/RA/**

Mark Lombard, Director,  
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